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# Monetary Policy Instruments for Developing Countries

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Rapidly changing financial markets have led many industrial and some developing countries to change to indirect methods of monetary control. More developing countries can be expected to follow their lead.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in PRE to examine the effects of economic regulation on the financial sector. The paper draws on discussions at a May 1990 seminar on monetary policy instruments sponsored by this Division, with the assistance of the International Monetary Fund. A volume of seminar proceedings will be published in 1991. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakam, room N9-003, extension 37666 (21 pages).

In the last few years, many industrial countries have considerably changed their approach to formulating monetary policy. These changes have accompanied — been a response to and a catalyst for — rapid changes in the sophistication and depth of financial markets.

In developing countries, both the evolution of financial markets and growing disenchantment with directed credit programs and bank-by-bank credit ceilings have increased the interest in at least examining and possibly moving to indirect methods of implementing monetary policy.

These developments have implications beyond their direct impact on the effectiveness of macroeconomic stabilization and control of inflation. They can strongly influence the efficiency and long-term development of the financial system and its contribution to economic growth.

Caprio and Honohan provide an overview of the policy issues developing countries face in light of industrial country experience in the last two decades. They discuss the objectives of monetary policy and how these have evolved in recent years, and they describe the different policy instruments that have become available to monetary authorities and how these instruments can be used to cope with the main shocks affecting monetary policy — those related to government deficit financing and to external flows.

Shifting from direct ways of controlling monetary policy is by no means universally appealing, they conclude. Direct controls are simple to operate and seem to offer a sure handle on overall credit or money growth. Several observers have noted that moving away from direct controls often involves a fundamental reorientation of central bankers and government officials, not only toward directed credit but toward the financing of government debt.

But monetary officials in some countries have found that there is no foolproof way to guarantee the achievement of any overall monetary target. Bank-by-bank credit ceilings suffer the same limitation: eventually nonbanks arise to escape credit limits, and banks have every incentive to evade controls. Moreover, such ceilings limit competition and — by choking off innovation and prompting excessive holdings of liquidity — can curtail growth both in the financial sector and in the rest of the economy.

Not all countries are now in a position to apply the experience already gained by industrial countries immediately in operating indirect methods of monetary control, but more and more monetary authorities can be expected to follow the lead taken especially by several Asian economies.

The PRE Working Paper Series disseminates the findings of work under way in the Bank's Policy, Research, and External Affairs Complex. An objective of the series is to get these findings out quickly, even if presentations are less than fully polished. The findings, interpretations, and conclusions in these papers do not necessarily represent official Bank policy.

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## MONETARY POLICY INSTRUMENTS FOR DEVELOPING COUNTRIES

Gerard Caprio, Jr. and Patrick Honohan

### INTRODUCTION

For a century or more it has been accepted that inappropriate decisions as to the price and availability of credit, or as to the expansion of monetary aggregates, could have damaging effects on price and output stability in the economy as a whole. Just how such monetary policy actions have their effect and what is the best way to implement policy has, however, remained controversial. In the last few years there have been considerable changes in the way in which many industrial countries approach the formulation of monetary policy. The changes have accompanied rapid development in the sophistication and depth of financial markets and have been both a response to this development and a catalyst for it. In developing countries, both the evolution of financial markets and growing disenchantment with directed credit programs and with bank-by-bank credit ceilings have led to increased interest in at least examining and possibly moving to indirect methods of implementing monetary policy.

As a result of its increased involvement in financial sector development issues, especially through the growing number of structural and sectoral adjustment loans with a financial component, the Bank has been asked to provide assistance in this area. Given that the mechanisms by which monetary policy is implemented can have important implications for the long term development of the financial sector (as explained below), the Bank has responded to these requests in conjunction with the IMF, whose interest in assuring effective tools for monetary policy is clear.

This paper provides an overview of the policy issues facing developing countries in this area in the light of industrial country experience during the last couple of decades<sup>1</sup>. The next section discusses the objectives of monetary policy and how these have evolved in recent years. There follows an account of

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<sup>1</sup>The paper draws on discussions at a seminar organized by the Financial Policy and Systems Division of the Country Economics Department of the World Bank, with the assistance of the IMF, in May 1990. A volume of the seminar proceedings will be published in 1991.

the different policy instruments available to the monetary authorities. How these instruments have been used to cope with the main shocks affecting monetary policy - those related to government deficit financing and to external flows - are the subject of the penultimate section. The paper ends with some concluding remarks.

### **The Objectives of Monetary Policy**

Some basic relationships are fairly reliably established for many countries and can be taken as a basis for obtaining a more complete understanding of how the financial sector works in a market-oriented economy. Thus, rapid growth in the money supply over a protracted period will lead to sustained inflation; an increase in the cost of credit or a reduction in its availability will dampen down economic activity<sup>2</sup> and will also tend to slow the underlying rate of inflation despite representing an additional cost to industry.

On the other hand there is not a clear one-for-one relationship between monetary growth and inflation in the short-run. Domestic prices can be sticky; exchange rates can overshoot their equilibrium levels following a disturbance, and may even veer away from equilibrium for a while. Innovations in the financial sector may alter the equilibrium relation between money, prices and output in ways that are hard to predict and may lead to an increase in the volatility of this relationship (see Goodhart (1989) and Lindsey and Wallich).

Accelerating inflation in many industrial countries in the 1960s and 1970s caused authorities to review their approach to monetary policy. It became widely believed that the common use of interest rates as operating targets for monetary policy had contributed to inflation as political pressures had combined with policy inertia to slow the response of monetary policy to rising prices. In the absence, at least from the early 1970s, of fixed exchange rate anchors, excessive

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<sup>2</sup>That is for an economy not experiencing financial repression. If, on the other hand, interest rates have been repressed to artificially low rates, and credit rationed arbitrarily, an increase in interest rates may lead to greater availability of credit and an improvement in long-term growth prospects.

monetary expansion had been tolerated. In order to correct this state of affairs, several industrial countries began to rely more heavily on the quantity of money as an indicator of monetary conditions, or even as an intermediate target. It was felt that the money supply would prove to be a good leading indicator of inflationary conditions so that keeping it under control would stabilize inflation. The degree to which the money supply was targeted to the exclusion of other factors varied from country to country. In particular, a degree of interest rate stability was also maintained in most countries, though for some two-and-a-half years (1979 to 1982) the US authorities allowed interest rates to move rather widely in an attempt to keep on course for their monetary targets.

Just as the monetary aggregates became more closely targeted, so they began to perform less reliably as a predictor of inflationary conditions or of the state of aggregate demand, as noted by Goodhart (1989) and others. In some part this contrary behavior reflected liberalization of financial markets which had been occurring around the same time (Broadbuss, Judd, de Vries). To some extent it also was due to the fact that near substitutes for the targeted aggregates were utilized once the authorities attempted to exert contractionary pressure. For example, in the United States, controls on M1 helped spur the growth of money market funds and led to a variety of transactions services for components of the broader money aggregates.

By the end of the 1980s most governments had formally or informally abandoned the narrow focus on targeting monetary aggregates in favor of a more eclectic approach which allowed them to include a number of different indicators of the state of the economy as a guide to policy. They had also instituted a more flexible regime of monetary instruments allowing them to influence monetary conditions more quickly than in the past and with a graduated pressure. At the same time many governments began to allow a much greater degree of competition in the financial system; the use of more indirect means of monetary control in this more competitive environment helped to ensure that monetary policy measures were not as subject to evasion by disintermediation as they had become by the 1970s.

An alternative approach to the focus on monetary aggregates as the main intermediate objective of monetary policy has been the use of ceilings on aggregate credit expansion. The ceilings were usually ensured by distributing sub-ceilings on a bank-by-bank basis. This approach was widely used in European countries in the 1970s, and still forms the basis of monetary policy in many developing countries (especially in Africa, and especially those undergoing policy adjustment programs supported by the IMF). However, the definition of the institutions to be included in such credit ceilings gave rise to many opportunities for avoidance through disintermediation and the development of near-bank and parallel credit markets which greatly reduced the effectiveness of these instruments. Bank-by-bank ceilings also distorted competition by penalizing more dynamic institutions, and discouraged resource mobilization: once a bank reaches its credit ceiling, it has no incentive to compete for additional resources, regardless of the profitability of its clients' investment opportunities (Johnston and Brekk, Cottarelli and Galli). Various suggestions have been made for attempting to restore competition by permitting the trading of credit quotas between banks, or by establishing an automatic link between each bank's current deposit mobilization and the allocation to it of future credit ceilings. However these theoretical suggestions have never been systematically applied, as many governments preferred to replace the bank-by-bank approach altogether.

Directed credit programs have regularly become entangled with the implementation of monetary policy. In particular, a variety of developing countries and several industrial countries have had monetary policy subverted by attempts to exempt priority sector credit from overall or bank-by-bank ceilings.<sup>3</sup> Widespread recognition of the drawbacks of directed credit schemes has led to a decline in their popularity; once willing to reconsider these programs,

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<sup>3</sup>In France, a program dubbed the "encadrement du credit" entailed a target for the net asset growth of each financial institution, with penalties imposed that were a (geometrically rising) function of the extent of the transgression (see Mourgues and Joint Economic Committee). However, until 1979, credit for energy, exports, and "social" housing were exempt. As expected, credit to these sectors boomed and led to a loss of monetary control. Coffee exporting countries in Central and West Africa were among those who experienced similar difficulties in the late 1980s.

authorities have become more willing to examine monetary policy instruments as well.

Countries that move away from bank-by-bank credit ceilings to a more indirect means of monetary control may find that they cannot achieve preset objectives for money or credit aggregates with the same degree of accuracy. The classic example of this problem is the experience of the United Kingdom in the 1970s which saw very considerable expansion in monetary depth when credit ceilings were removed. Neither credit nor money displayed a stable relationship with nominal GNP or inflation in those circumstances, and a single-minded pursuit of a rigid target for the aggregates would have been costly (see Goodhart, 1989). Developing countries that move to indirect monetary control, are also likely to experience less certainty when using monetary aggregates as intermediate objectives. It may be less difficult to achieve intermediate objectives which are elements of the central bank balance sheet, but the reliability of these as a means of influencing aggregate demand or inflation remains relatively unexplored for developing countries.

#### **Instruments for Smoothing Bank Liquidity**

Banks settle their debts with one another and meet cash withdrawals by drawing on their credit accounts at the central bank, or by using currency in their vaults and tills. It may be noted that these assets, representing bank liquidity or the reserves of the banking system, are both liabilities of the central bank. In case of need, banks can also sell liquid assets or borrow from each other or from the central bank. Over the longer run, banks can repay their short-term borrowing through the proceeds of maturing loans to customers, or by mobilizing additional deposits. The speed and ease with which such actions can be taken depends on the sophistication of the banking system.

When the banking system as a whole is short of liquid funds, there is a generalized upward pressure on interest rates and a tendency for bank credit to be expensive and scarce. Such pressures can be eased by central bank action to provide liquidity to the system; an important function of the central bank is



to ensure that seasonal and random influences on liquidity conditions are offset so that they do not result in corresponding variations in interest rates. On the other hand the central bank can also take the initiative to ease or tighten liquidity conditions according as it perceives a need to stimulate or to restrain aggregate expenditure (see Binhadi and Meek).

In the past, many central banks provided semi-automatic borrowing facilities to banks at posted interest rates (known as the discount rate, Bank rate or Lombard rate) which were varied infrequently and which effectively placed a ceiling on short-term interest rates. Where banks were customarily borrowers from the central bank, its posted rate also provided a floor for short-term interest rates as surplus banks could lend to deficit banks at or near the posted rate. Because of the political sensitivity of this key rate, upward adjustments were often made too late and in steps that were too small. As a result, most industrial country central banks have moved away from the automaticity of lending facilities, and now manage interest rates in a more flexible manner using a variety of new instruments. Each country has adapted its system of liquidity control in accordance with local conditions, with the result that a great variety of arrangements are in use, though each tends to satisfy certain key requirements. First, there is no longer an automatic availability of borrowing from the central bank at posted rates; accordingly short-term interest rates tend to be more flexible than in the past. Second, most systems still have an upper and lower buffer to prevent undue interest rate gyrations in case the day-to-day instruments for influencing interest rates are unable to cope with a big surge in the demand for liquidity or in the availability of liquid funds. Third, the fluctuations of interest rates provide much information to the central bank to help it gauge market conditions.<sup>4</sup> Fourth, for open economies operating a pegged exchange rate system, the regime often provides for an automatic stabilizing response of short-term interest rates to foreign exchange flows.

Liquidity management in most industrial countries takes place today in a

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<sup>4</sup>Note that in order to be sure of the information content of market movements, the market must be fairly competitive. If there are only a handful of institutions in the market, they could collude to send misleading signals to the monetary authorities.

much more developed and competitive money market than was the case only a few years ago. While other policy and technological changes have also played a part in developing money markets, it can be said that the more flexible techniques of monetary management have required and encouraged these developments. The economy has been well-served by a deeper money market, allowing growing numbers of corporate borrowers direct access to short-term funds without their having to pay for bank intermediation costs, and has also ensured a more competitive and probably less costly system of bank intermediation. Firms allowed to hold certificates of deposits or commercial paper bearing market rates of interest will not settle for below-market rates on their deposits. Developing countries can also benefit from such reforms (and some already are) as they too move towards refined techniques of monetary management. In particular, deeper money markets allow banks to economize on liquidity holdings; their absence may partly explain the predominance of assertions that banks in the poorest countries are exceedingly liquid (Caprio and Honohan).

The most striking illustration of how apparently different regimes of monetary control actually achieve the same result is the fact that in some countries (for example France and Canada) the central bank's posted (discount) rate is normally kept well above market rates, whereas in others (for example the United States, Japan and the Netherlands) it is normally below market rates (Kneeshaw and Van den Bergh). The resolution of this apparent paradox lies in the different manner in which lending at the discount window is practiced in the two groups of countries. Where the discount rate is below the market rate, its availability to borrowers is administratively restricted. In these systems it is normal on any given day to see some banks borrowing at this rate, but most avoiding or limiting the need to borrow by holding a margin of excess reserves even though the opportunity cost of these reserves, represented by the interbank lending rate, is above the discount rate. In this situation the discount rate provides a firm lower bound to interest rates; it is also a somewhat flexible upper buffer in that the banking system will be admitted to the central bank discount window if the interbank rate moves too far above the discount rate. In countries where the discount rate is kept well above market rates (clearly indicating its penalty nature), it provides an upper bound to interest rates, but is not heavily used by banks because of the availability of cheaper market

alternatives. A central bank operating a higher-than-market discount rate policy usually has a way of stepping in quickly to provide a deposit facility (or to offer short-term bills on itself at a given yield) in order to place a floor below interest rates if they are quickly falling too far. Thus when Germany moved its posted central bank lending rate from just below to well above market interest rates in the mid-1980s, it also began to conduct the bulk of its money market interventions through mechanisms that did not involve the posted lending rates<sup>5</sup>.

Some industrial countries have not achieved this degree of flexibility in their interest rate management. For example Belgian banks hold large quantities of government bills, whose yield represents the cost of short-term funds in Belgium and is essentially determined by the authorities' funding decisions. In Sweden, the banks are subject to an automatic graduated scale of central bank lending rates and a central bank deposit facility. In contrast, the central bank lending rate in the United Kingdom is used more as a fine-tuning mechanism and is managed on a day-to-day basis.

Between the floor and ceiling buffers provided in the manner just outlined, the central bank usually has a variety of other instruments to influence bank liquidity conditions. Many of these involve quantity rather than price (interest rate) decisions by the authorities. Thus, for example, it is normal for central banks to make projections as to the liquidity needs of the system over a period of one month or more and to make interventions to add or drain the amount of liquidity that seems appropriate for that period on average. Predictable shorter-term fluctuations can also be met in a similar manner with instruments of the appropriate maturity. It will be desirable to deal with unexpected pressures with different instruments tailored to the particular circumstances. Use of one instrument rather than another can come to signal the authorities' intentions, so that action taken to offset some expected fluctuation is not misunderstood as a change of policy, thereby avoiding unintended speculative pressures in the market.

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<sup>5</sup>In particular, it began to use what are known as "reversed transactions" (explained below) instead of lending.

Among the instruments used are reversed transactions<sup>6</sup> in domestic securities and foreign exchange, transfers of government deposits, and outright purchases and sales of domestic securities and foreign exchange (Kneeshaw and van der Bergh, and Muelendyke). As regards the last category, outright open market operations in domestic securities are most appropriate to meet trend needs for liquidity changes; however they are not used extensively outside the United States, partly because most other countries do not have as rich a market of first-rate short-term securities. Lower quality securities are unlikely to be useful as collateral because of their credit risk, while long term securities are more exposed to interest rate variations. Indeed, this is one of the principal advantages of reversed operations: by buying a government security and contracting to resell it at an agreed price the authorities retain the initiative in terms of amount, maturity and timing regardless of the terms of the underlying security.<sup>7</sup> Reversed operations can be implemented without much effect on the price of the underlying security and they have most of the characteristics of the secured loan without having to be made at the posted rate. The shortage of first-class collateral in developing countries has made reversed transactions especially useful; although the central bank can decide to make any asset eligible for repos on a bilateral basis with selected institutions, acceptance by a wide range of market participants will be crucial to promote tradeability.

For speedy action, central banks often turn to foreign exchange swaps,

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<sup>6</sup>These are often known as "repos" or "swaps". A reversed transaction involves the sale of a security and an agreement to repurchase it later at a fixed price. It makes liquid funds available to the seller for the agreed duration of the transaction. The relation between the current price and the agreed future price establishes an implicit interest rate for what, for many purposes, can be thought of as a secured loan.

<sup>7</sup>Thus the central bank can do a one-day or one-week repo with a 30-year bond as an underlying security. In Tunisia, the government has in effect securitized part of the banks' loan portfolio by allowing some loans, presumably to high quality risks, to serve as the underlying basket of securities for repos. This operation also could be viewed as a rediscounting of a basket of loans, compared with the usual rediscounting of specific, or individual, loans.

i.e., reversed transactions in foreign exchange markets (Kubarych). The size of the foreign exchange market also means that large volumes of liquidity can be added or drained in this manner, and it is the main intervention technique used by the Swiss authorities. However this approach is not without drawbacks: there are usually only a handful of large participants in the foreign exchange market, so forex swaps are not good for providing or withdrawing liquidity on a broad base from the whole banking system. Furthermore provision of liquidity through forex swaps (i.e., buying foreign exchange spot with a contract to re-sell it later) at a time of speculation against the domestic currency is very risky for the authorities as they cannot be sure that there will be no devaluation. The authorities in several countries, industrial as well as developing, have lost large gambles of this type.

Shifting Government deposits between commercial banks and the central bank is another tool by which the authorities can influence liquidity conditions. A rise in commercial banks' share of government deposits increases bank liquidity just as do expansionary open market operations. However, unless there are only a few banks (as in Canada, where the instrument has been most used -- see Shearer, Chant, and Bond), this instrument suffers from the selectivity mentioned for forex swaps. There can be technical difficulties as well: the procedure needs to be governed by a framework agreement on the distribution among banks, the remuneration of the deposits, and the security which the government receives for its deposits. Shifting government deposits neither requires nor furthers the development of money markets, which is at the same time a practical advantage and a reason for not relying on them indefinitely. Nevertheless, the management of government deposits needs to be given attention in the context of monetary management, as the distribution and size of these deposits will influence liquidity conditions whether or not they are consciously being used as an instrument of policy.

Moving from a system of monetary management where the central bank provides liquidity on a bilateral bank-by-bank basis, as with the discount window, to one where the focus is on managing the overall quantity of liquidity, requires the development of markets in which the banks and possibly other participants can compete for their liquidity needs. Once again, there is no unique model for

successful development of such markets; various institutional arrangements are possible. However, participants in the wholesale market for very short-term funds require trustworthy counterparties and an instrument, or collateral, of the highest quality. For this reason several countries conduct their liquidity management in a restricted market in which only selected institutions, for example the banks, or approved money brokers, are admitted.

Although there is always the risk that, by restricting the number of participants, the authorities will not achieve as competitive a market as might otherwise emerge, a restricted market of this type can be a useful first step towards the evolution of a wider money market. In Thailand, for instance, the commercial banks make bids and offers for repurchase transactions in long-term government paper; the transactions are for a few pre-defined maturities and the central bank, acting as a broker and market-maker receives the bids, arranges matches, and may intervene on its own account. An alternative approach in which the central bank also deals with a restricted market is the Treasury bill auction in the Philippines, in which fewer than twenty (nonbank) authorized dealers participate, but which provides the main instrument of interest rate policy in that country, as the authorities decide how many of the bids to accept.

In some countries it is not possible to identify a sufficient number of appropriately creditworthy counterparties, as where the banking system has been weakened by widespread loan-losses, or where the financial sector is too small or concentrated. Elsewhere, there may be a shortage of good quality collateral, as where the government does not borrow domestically, or where there have been problems of government domestic payments arrears. In these cases action to correct underlying deficiencies, for example by rehabilitating the banking system, encouraging new entrants, and clearing up domestic payments arrears, is desirable anyway and should be tackled before attempting market-oriented reforms which cannot be supported by the current state of the financial system. In several economies, such as Indonesia and Taiwan, the central bank has issued its own short-term paper to get around the problem of a deficiency of collateral; this solution is being actively considered in Botswana.

One advantage to using specialized money market brokers or market-makers,

instead of banks, is that they have the incentive and a clear objective to widen the number of counterparties with whom they deal. Even if it is possible for these brokers to fund their lending from banks, a wider clientele will tend to lower their funding costs and also allow them more flexibility in managing their portfolio by selling paper outright to nonbank clients. In seeking out this clientele, they will broaden the scope of the money market, provide better cash management opportunities for large companies and other wealth-holders and improve the access of quality borrowers to short-term finance at the lowest possible interest rates. As against this it may be more efficient, especially in smaller countries, for the central bank to deal directly with banks without going through the additional intermediary tier of brokers. Many of the advantages of having brokers may be lost if they are wholly-owned and controlled by the banks.

If central bank management of bank liquidity is to be effective in influencing monetary conditions generally, it is essential that banks do meet their cash obligations, including the maintenance of any reserve requirements. The central bank must automatically penalize unauthorized overdrafts arising from the clearing of cheques with sufficient severity to make this quite exceptional. However, it is not strictly necessary to have formal reserve requirements to achieve monetary control, as demonstrated by their absence in Canada and the United Kingdom, since banks will necessarily hold some reserves on a voluntary basis to meet a bunching of withdrawals or loan requests from important clients (Caprio and Honohan, Simpson, and Harrington). Nonetheless, many countries do have reserve requirements, and there is the view that having requirements provides a fulcrum on which monetary policy can operate with a more reliably predictable impact on monetary aggregates (Lindsey and Wallich). An additional merit of reserve requirements is that they can be adjusted to produce desired changes in liquidity: thus they can be raised in times of unexpectedly strong capital inflows to effect a broad-based mopping-up of excess bank liquidity, thereby sterilizing the domestic impact of the inflows. Apart from such occasional circumstances, however reserve requirements are often considered too blunt an instrument to be used for varying liquidity conditions, since even slight variations in them can produce large changes in the amount of deposits consistent with reserves. Furthermore, as money markets become more sophisticated, the scope for avoidance of reserve requirements through the

substitution of non-reservable instruments becomes very wide. Indeed, this motive was also prominent in the rise in several countries of money market accounts: these accounts were popular because they evaded reserve requirements and thus allowed the payment of higher interest rates.

Reserve requirements were originally introduced in many countries as a prudential measure to ensure that banks would have sufficient liquidity on hand to meet unexpected deposit withdrawals. For that reason they were expressed as a fraction of deposits. For monetary control purposes, there is no reason why they could not be expressed as a proportion of credit, especially if credit is considered a more relevant intermediate objective of monetary policy, and this has been done in various countries. It is also possible to have a progressive schedule of reserve requirements-- for example, through marginal reserve requirements on extensions of credit as overall credit targets are approached -- as a more flexible alternative to bank-by-bank credit ceilings. In most countries, with reserve requirements based on deposits, the required reserves are defined by reference to a previous level of deposits; this allows easy monitoring, though it may introduce some delay in the impact of monetary policy on the aggregates. This "lagged-reserve accounting" also makes it easier for banks -- especially those with an extensive branch network or a cumbersome reporting system -- to know on a timely basis their required level of reserves. Whatever the base or purpose of reserve requirements, it is desirable that the requirement to maintain the reserves should allow the flexibility of permitting averaging over the maintenance period in order to avoid unnecessary day-to-day fluctuations in liquidity conditions. Countries that have ignored this point have experienced large swings in interest rates as banks have had to scramble continually for reserves.

The assets eligible to satisfy reserve requirements are usually defined to include specified classes of deposit at the central bank and possibly special government bills. Some countries also include vault cash. Most countries do not include instruments which bear a full market rate of interest, and therefore the requirement represents a distorting tax on financial intermediation. Admittedly, the central bank does provide valuable services free of charge to the banking system, but these services are not proportional to the tax base.



When inflation and nominal market-clearing interest rates combine with high reserve requirements, the tax can be very severe. Accordingly it is best to limit the size of reserve requirements and to link the rate of remuneration on required reserves to the market rate (even if for revenue purposes it is kept some distance below market).

### **Coping with Shocks**

For the most part, the assets which make up bank reserves - usually currency and deposits at the central bank - are liabilities of the central bank (see figure 1). Non-bank holdings of currency are a relatively predictable quantity (and, except in centrally planned economies, are always provided fully to meet demand; control over the money supply does not mean squeezing the availability of hand-to-hand currency). Therefore in order to influence the quantity of bank liquidity, the central bank must have regard to the remaining elements of its balance sheet, adjustments in which usually reflect, through the balance sheet constraint, a simultaneous adjustment in bank liquidity. The main other items are central bank lending to banks, holdings of government obligations and foreign exchange reserves. (Thus, for example, when a bank purchases foreign exchange from the central bank for a customer, the central bank's foreign exchange holdings fall, as does the bank's deposit at the central bank). By removing the banks' automatic access to borrowing from the central bank at or below market rates, it is possible to bring the first of these items under control. The other two items may present greater difficulties, and are treated below in turn.

**Figure 1: Simplified Central Bank Balance Sheet**

<b>ASSETS</b>	<b>LIABILITIES</b>
Net Foreign Assets	Reserve Money
	Currency issued
Domestic Credit	Bank deposits
Claims on government, net	Other non-government deposits*
Claims on banks	Capital, reserves etc.
Claims on nonfinancial firms*	

\* If any.

## The Impact of Government Deficit Financing

Some countries have established a firm separation of monetary and fiscal policy in that they prohibit any lending from the central bank to the government. Less rigorous rules in other countries establish quantitative limits on such lending. Where lack of fiscal restraint presents serious risks to monetary stability, such rules can have merit, despite their arbitrary nature. In most countries, however, the central bank has to cope with providing an environment in which the financing of the government deficit is achieved while maintaining as much monetary and general economic stability as possible.

In Italy, enormous government deficits have been financed from domestic savings, while at the same time inflation has declined, and the central bank has withdrawn from direct support of the government bond market.<sup>8</sup> This has been achieved by maintaining a level of real interest rates which, though high, especially in recent years, can only be described as realistic in the context of the large deficits (see Padoa-Schioppa). The authorities have progressively dismantled regulations which had been designed to provide captive markets for government paper (such as obligatory minimum holdings by contractual savings institutions and controls on holdings of foreign currency assets). Now holders of government paper do so voluntarily, and they continue to be willing to absorb more (whereas those who were penalized by the regulations of the past have been slow to acquire voluntary holdings). The withdrawal of the central bank has reduced the rate of creation of bank liquidity and has slowed the growth in nominal money, allowing the currency to retain its position in the European Monetary System exchange rate arrangements and reducing the rate of domestic price inflation.

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<sup>8</sup>Although the overall public sector borrowing requirement has remained above 10% of GDP since the mid-1970s, in recent years the non-interest component has declined to 2-3% of GDP. Indeed, the pressure of a rising interest bill, associated with the need to finance government debt at market rates, has increased the pressure on the government to reduce the non-interest deficit.

Where the government has not been able to survive without extensive monetary financing it has proved impossible to restrain inflation. In Brazil, the extremely high inflation of 1989 left the central bank no option but to confine its objectives to maintaining a functioning system of financial intermediation, again by ensuring that interest rates were at a realistic level. Making no attempt (at the level of monetary policy) to restrain the nominal expansion in monetary aggregates, the authorities instead focussed on indicators of inflationary expectations including the parallel markets in foreign exchange and gold, and adjusted interest rates on a daily basis to achieve positive ex ante real interest rates. This tactic allowed the financial sector to continue to function for some time despite the difficulties of high and unpredictable inflation (with monthly rates of inflation rising as high as 80 per cent or more).

In Chile also - though inflation has been much lower in recent years - monetary policy is operated through objectives for the real interest rate. This interest rate is transmitted to the market effectively through the central bank's lending window and its deposit facility for banks. The precise approach is somewhat different, relying as it does on the daily monetary correction factor (about one-thirtieth of the previous month's calculated inflation rate) which is commonly used as a basis for indexed contracts in Chile. Indexation of monetary instruments remains controversial, however. Many feel that, by lowering the perceived costs of inflation, indexation reduces the willingness of political authorities to take the necessary fiscal steps to halt it. On the other hand, the extension of indexation to household mortgage debt (which has not been successfully implemented in all of the countries attempting it) can create an important lobby against inflation.

#### External Flows and Monetary Policy

A freely floating exchange rate conceptually means that there are no flows into or out of the central bank's foreign exchange reserves. In the polar case of a rigidly fixed exchange rate, the central bank has no freedom to control its

foreign exchange reserves, as it has agreed to accept or provide foreign currency against domestic funds on demand. In between these two extremes are a variety of different approaches to exchange rate management generating a variety of implications for the operation of monetary policy (Argy).

If it has adopted a free float, a country cannot rely on exchange rate policy to give it a stable price level. Monetary policy, and in particular limiting the nominal expansion of bank liquidity, will be the key to controlling inflation. It is in these circumstances that a stable interest rate may be the enemy of price stability, particularly if inflationary expectations build up and result in more and more borrowing from the central bank at the - now too low - stable interest rate.

An active interest rate policy in a floating exchange rate regime has a double effect on demand conditions in the economy. By acting to raise interest rates, the authorities increase costs and lower domestic demand directly, while the resultant capital inflows serve to appreciate the currency, thereby also reducing external demand. Thus the number of sectors exposed to the first-round impact of monetary policy is increased, and the negative impact on any one sector, such as housing, may be diminished.

A fixed exchange rate, by contrast, should ensure a good degree of price stability, depending, of course, on what currency or basket has been adopted for the peg. But the exchange rate is fixed only as long as the authorities have sufficient reserves or foreign borrowing capacity to defend it. An inappropriately high level of domestic liquidity expansion (resulting for example from the central bank financing much of a high budget deficit), will result in a steady drain of reserves, and eventually a forced abandonment of the peg, perhaps precipitated by a well-judged attack on the currency by speculators.

A fixed exchange rate can also be vulnerable even if monetary policy is not systematically misaligned as described in the previous paragraph. For example, spontaneous short-term capital inflows, if not sterilized by offsetting action by the central bank, may so far relax domestic credit conditions that wages and costs generally get out of line, weakening the competitive position

of the economy and resulting in an unsustainable drain on reserves over the longer run, especially if the capital flows are reversed.<sup>9</sup> Prompt action by the central bank to sterilize some of the inflow may be necessary to prevent this cycle, which has been observed in several developing countries as well as in the smaller developed countries. There can also be spontaneous speculative attacks on a fixed exchange rate (although the onus must be on the authorities to prove to their own satisfaction that the flows are spontaneous and do not reflect an underlying weakness in the economy). Few countries have sufficient resources to ride out such unwarranted speculative attacks without adjusting policy. The normal action is to allow the drain of domestic liquidity which such an attack produces to raise interest rates - dramatically if necessary. This can make unsuccessful speculation so costly that the attack is quickly choked off.

However, the impact of the balance of payments on monetary conditions need not be destabilizing. Indeed it has long been observed that a fixed exchange rate country whose competitive position deteriorates will experience a current account deficit which, if not sterilized, will tighten domestic liquidity conditions enough to lower domestic demand, divert the production effort into exports and improve competitiveness.

#### Concluding comments

Shifting away from direct means of controlling monetary policy is by no means universal in its appeal. Direct controls are simple to operate, and seem to offer a sure handle on overall credit or money growth. As noted by several observers, moving away from direct controls often involves a fundamental reorientation of central bankers and government officials, not only in regard to directed credit but also concerning the financing of government debt. However, monetary officials in a variety of countries have found that there is no fool-proof method to guarantee the achievement of any overall monetary target. Bank-by-bank credit ceilings suffer from the same limitation; eventually,

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<sup>9</sup>Short-term capital inflows can be spurred by a variety of factors, such as a rise in the price of a natural resource, as in the case in oil or natural gas exporting countries, or reflecting a significant liberalization of the domestic economy, as in the Southern Cone economies in the 1970s.

nonbanks arise to escape credit limits, and banks have every incentive to evade controls. Moreover, such ceilings limit competition and, by choking off innovation and prompting excessive holdings of liquidity, can curtail growth both in the financial sector and in the rest of the economy as well. Although not all countries are now in a position to immediately apply the experience already gained by industrial countries in operating indirect methods of monetary control, it can be expected that more and more monetary authorities will soon begin to follow the lead taken especially in several Asian economies.

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